Amendments to the Claims

1. (currently amended) An optical performance monitor for measuring the performance of optical networks, comprising:

a demultiplexer for demultiplexing an input beam into a plurality of wavelength channels;

an array of divided output waveguides, each divided output waveguide positioned to receive a corresponding demultiplexed wavelength channel from said demultiplexer, and each divided output waveguide laterally separating said corresponding demultiplexed wavelength into a first portion and a second portion;

an undivided output waveguide between adjacent pairs of divided output waveguides, positioned to receive background noise signals having wavelengths between said demultiplexed wavelength channels; and

a detector array having sensor elements positioned to receive said respective first and second portions of said demultiplexed wavelength channels and said background noise signals for comparing the intensity of radiation received by said divided output waveguides with the intensity of said noise signal to determine a signal-to-noise ratio for each of said demultiplexed wavelength channels.

2. (original) An optical performance monitor as claimed in claim 1, wherein said demultiplexer is an echelle grating.

3. (currently amended) The optical performance monitor as claimed in claim 17 ~~1~~, further comprising an undivided output waveguide between adjacent pairs of divided output waveguides, said undivided output waveguides being positioned so as to receive background noise signals having wavelengths between said demultiplexed wavelength channels.

4. (previously presented) The optical performance monitor as claimed in claim 2, wherein said echelle grating is a Rowland grating, said demultiplexed wavelength channels being focused onto said divided output waveguides.

5. (original) An optical performance monitor as claimed in claim 4, wherein said echelle grating is a blazed grating.

6. (original) An optical performance monitor as claimed in claim 4, wherein said detector array is an InGaAs array.

7. (original) An optical performance monitor as claimed in claim 1, wherein said output waveguides are ridge waveguides and are coupled to said echelle grating by a slab waveguide.

8. (original) An optical performance monitor as claimed in claim 7, further comprising a thermoelectric cooler and temperature sensor to maintain the temperature of said monitor at a nominal value.

9. (original) An optical performance monitor as claimed in claim 1, wherein said divided output waveguides are positioned such that when light having a nominal channel wavelength is directed onto said divided output waveguides, said light is divided substantially equally into said first and second portions.

10. (currently amended) A method of monitoring the performance of an optical network, comprising the steps of:

demultiplexing an input beam into a plurality of ~~wavelengths~~ wavelength channels having their nominal wavelengths centered on an ITU grid;

receiving said demultiplexed ~~wavelengths~~ wavelength channels in respective openings of divided output waveguides,

providing a waveguide divider in each output waveguide, which divides each output waveguide into first and second split waveguide sections, for ~~said output waveguides~~ separating each of said demultiplexed ~~wavelengths~~ wavelength channels into first and second laterally spaced portions; and

detecting the relative intensity of said first and second laterally spaced portions to determine the drift of said demultiplexed wavelengths from nominal values.

11. (original) A method as claimed in claim 10, wherein said plurality of wavelengths are demultiplexed with an echelle grating.

12. (currently amended) The method as claimed in claim 10, wherein said demultiplexed wavelength channels are directed onto a mid-point of said divided output waveguides so that the nominal intensity of said first and second laterally spaced portions is substantially the same.

13. (previously presented) The method as claimed in claim 10, wherein said input beam is demultiplexed with a Rowland echelle grating, which focuses said demultiplexed wavelength channels onto said divided output waveguides.

14. (previously presented) A method as claimed in claim 10, further comprising detecting background radiation at wavelengths corresponding to positions between said divided output waveguides, and comparing the intensity of radiation received by said divided output waveguides with background radiation to determine a signal-to-noise ratio for said demultiplexed wavelength channels.

15. (currently amended) A method as claimed in claim 10 ~~11~~, further comprising demultiplexing a background noise signal having wavelengths between said wavelength channels; ~~wherein said~~ ~~laterally spaced portions are detected with an InGaAs detector~~ receiving said demultiplexed background noise signal in an opening of an undivided output waveguide; and

detecting the intensity of said noise signal; and

comparing the intensity of radiation received by said divided output waveguides with the intensity of said noise signal to determine a signal-to-noise ratio for each of said demultiplexed wavelength channels.

16. (Cancelled)

17. (currently amended) An optical performance monitor for measuring the performance of optical networks, comprising:

a planar waveguide demultiplexer ~~echelle grating~~ for demultiplexing an input beam into a plurality of wavelength channels having their nominal wavelengths centered on an ITU grid;

an array of divided output waveguides, each divided output waveguide including:

an opening positioned to receive a corresponding demultiplexed wavelength channel from said demultiplexer, ~~and each divided output waveguide~~

a waveguide divider therein forming first and second split waveguide sections for laterally separating said corresponding demultiplexed wavelength channel into a first portion and a second portion; and

a pair of exits for outputting the first and second portions of respective wavelength channels;

a slab waveguide coupling said output waveguides to said planar waveguide demultiplexer ~~echelle grating~~; ~~and~~

a detector array having sensor elements positioned to receive said respective first and second portions of said demultiplexed wavelength channels; and

monitoring means for measuring drift for each wavelength channel by comparing measurements of the first and second portions for each wavelength channel from the array of detectors with predetermined nominal measurements.

18. (currently amended) The optical performance monitor as claimed in claim 3, further comprising:

additional detectors for measuring the background noise signals; and

monitoring means for determining an optical signal-to-noise ratio of the wavelength channels by comparing measurements of the first and second portions to the background noise signal ~~from the detector array and the additional detectors~~.

19. (previously presented) The optical performance monitor as claimed in claim 1, further comprising monitoring means for measuring drift for each wavelength channel by

comparing measurements of the first and second portions for each wavelength channel from the array of detectors with predetermined nominal measurements.

20. (new) The optical performance monitor as claimed in claim 1, further comprising:

monitoring means for determining an optical signal-to-noise ratio of the wavelength channels by comparing measurements of the first and second portions to the background noise signal.